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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,952	07/22/2003	Steven R. Radford	1684-5323.1US	7688

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EXAMINER

NEUDER, WILLIAM P

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,952

Applicant(s)

RADFORD ET AL.

Examiner

William P Neuder

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-115 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 113-115 is/are allowed.
- 6) ☒ Claim(s) 1-103, 107, 108 and 110 is/are rejected.
- 7) ☒ Claim(s) 104-106, 109 and 112 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/22/03, 1/8/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claim 113 is objected to because of the following informalities: In line 10, "by way pressurizing" should be --by way of pressurizing--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-100 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1, 64 and 83 all contain the phrase "a structure for retaining the at least one laterally movable blade at an outermost lateral position". No structure can be found for performing this. It seems that the fluid pressure maintains the blades at the expanded configuration. Please point out the area of the specification and drawings that describe and show this feature. The claims have been treated as if the fluid pressure is the means for retaining the blades expanded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4,6-8,21-24,26-29,54,56,60-63,101-103,107,108 and 110 are rejected under 35 U.S.C. 102(e) as being anticipated by Dewey et al (2003/0155155).

Dewey discloses an expandable reamer and method of reaming. The reamer has a tool body 510 having a flow bore 508 extending therethrough. The body includes upper 514 and lower 512 connection means for connection to a drill string. Blades 520 are carried on the tool body and have a collapsed state (fig. 4) and an expanded state (fig. 5). Biasing spring 540 biases the blades to the collapsed state. Fluid pressure along with actuation sleeve 530 hold the blades in the expanded state. Actuation sleeve 560, 530 is positioned along the inner diameter of the tool body. The sleeve is configured to prevent or allow fluid communication with blades through ports 595. When the fluid pressure in flow path 508 is lower than the annulus 22 pressure, the blades will be in the retracted state. When the fluid pressure in bore 508 is increased to above the annulus pressure, the actuation sleeve 530 will begin to move and allow blade expansion. As to claim 2, fluid aperture 575 is disposed with ring 570 which is attached to the blades and therefore, port 575 is considered disposed within the blade. As to claim 3, port 575 is disposed at an angle. As to claim 4, cutter elements 700 disposed on the blades are superabrasive cutters. As to claim 6, the actuation sleeve is configured to allow an increase in size of the flow path in that when the pressure within bore 508 is greater than the annulus pressure, the fluid will flow through ports 595 into alternative flow path 610. As to claims 7,8,22 and 23, the cross-sectional shape of the

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blades is arcuate. As to claim 21, three identical blades 520 are provided. As to claim 24, the blades extend to expanded configurations. While this claim does not require the two expanded positions to be different, if the claim so called for this, the use of adjustable retainer 550 would allow the blades to extend differing distances. As to claim 26, adjustable retainer 550 is provided. As to claims 28 and 29, the blades are tapered at the upper ends (unnumbered, but seen in figure 5 near 520). As to claim 27, retainer 550 is considered a block. As to claims 54 and 108, the flow path is configured to allow a perceptible drilling fluid pressure response indicating an operational state of the tool (see par. 55). As to claim 56, ports 595 are provided. As to claims 61-63, ovoid structures 800 are also provided on the blades. Wear pads 800 are ovoid shaped and are spaced along the blade and formed from hard material. The wear pads limit damage of the cutting structures 700. As to method claim 101, flow of drilling fluid through the tool at a pressure above the annulus pressure causes the blades to expand and continuation of the flow keeps the blades in the expanded configuration where the blades cut the formation. As to claim 102, the actuation sleeve prevents communication with the blades until the pressure rises in path 508 to above annulus 22 pressure. As to claim 103, actuation sleeve is positioned to allow communication with the blades when the pressure exceeds annulus pressure. As to claim 107, actuation sleeve 530 and 550 are moved so that the lateral extents do not correspond with the lateral extent of the blades. As to claim 110, the pressure response is identified at the surface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5,30-35 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dewey et al.

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As to claim 5, the examiner takes official notice that tungsten carbide is a well-known cutting material. It would have been considered an obvious design choice to form cutter elements 700 from any well known cutter material of which tungsten carbide is one. As to claims 30,34 and 35, the actual size or amount of expansion would have been considered an obvious design choice depending upon the size of hole being drilled and the adjustment made to retainer 550. As to claims 31-33, three blades are asymmetrically disposed around the tool body so that they do not overlap. AS to claim 11, it would have been considered an obvious design choice to use the device within a casing section as opposed to open hole.

Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dewey et al in view of Jones.

Dewey, as described above, is considered to disclose all of the claimed features except for the use of lock rods to retain the blades. Jones teaches that it is known to use locking rods 44 to retain the blades on the tool body. It would have been considered obvious to provide Dewey et al with the locking rod retaining mechanism of Jones to further ensure that the blades do not become detached from the tool body as taught by Jones since the blades becoming detached creates numerous problems which results in down time for the drilling rig and limiting downtime as always advantageous. As to claim 59, the number of locking rods used would have been considered an obvious design choice.

Allowable Subject Matter

Claims 104-106, 109 and 112 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 113-115 are allowed.

Claims 64-100 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

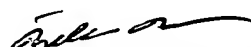
Claims 9-20, 25, 36-53, 55 and 57 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P Neuder whose telephone number is 703-308-2150. The examiner can normally be reached on Tuesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J Bagnell can be reached on 703-308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William P Neuder
Primary Examiner
Art Unit 3672

W.P.N.